

What is claimed is:

1. An electrophoretic display comprising:
  - a plurality of pixel electrodes that are provided independently with respect to pixels uniformly arranged above a display surface;
  - an active-matrix array of switching elements that are respectively connected with the pixel electrodes;
  - a substrate having a common electrode that covers an entire area corresponding to the display surface; and
  - an electrophoretic ink layer in which a number of charged pigment particles are contained and dispersed in dyed solution,wherein the common electrode and the pixel electrodes are respectively driven at different electric potentials causing electric fields by which the charged pigment particles move in desired directions to form a desired display content emerging above the display surface in response to display data, which is rewritten in such a manner that the display content is erased at once from the entire area corresponding to the display surface and is then rewritten with a new one.
2. An electrophoretic display according to claim 1, wherein a first common voltage is applied to the common electrode to erase the display content from the entire area corresponding to the display surface, while a second common voltage is alternatively applied to the common electrode to rewrite the display content with the new one.
3. An electrophoretic display according to claim 1, wherein voltages respectively

applied to the common electrode and the pixel electrodes are both not greater than 20V.

4. An electrophoretic display according to claim 1, wherein voltages respectively applied to the common electrode and the pixel electrodes are both not greater than 15V.

5. An electrophoretic display according to claim 1, wherein voltages respectively applied to the common electrode and the pixel electrodes are both not greater than 10V.

6. An electrophoretic display according to claim 1, wherein the charged pigment particles and the dyed solution are contained in a plurality of microcapsules, which are linearly arranged within the electrophoretic ink layer.

7. An electrophoretic display according to claim 1, wherein the switching elements comprise thin-film transistors.

8. An electrophoretic display according to claim 7, wherein the thin-film transistors are low-temperature processed polysilicon thin-film transistors.

9. An electrophoretic display according to claim 7, wherein at least channels of the thin-film transistors are made by organic films.

10. An electrophoretic display according to claim 1, wherein the display content is erased from the entire area corresponding to the display surface in such a manner that a prescribed voltage is applied between the common electrode and the pixel electrodes while all the pixel electrodes are commonly set to a same electric potential.

11. An electrophoretic display according to claim 10, wherein an absolute value of an electric potential of the common electrode is normally set lower than absolute values of electric potentials of the pixel electrodes in order to rewrite the display content with the new one.

12. An electrophoretic display according to claim 10, wherein a reference color is defined when an absolute value of an electric potential of the common electrode is set higher than absolute values of electric potentials of the pixel electrodes.

13. An electronic apparatus having the electrophoretic display as defined in claim 1.

14. An electrophoretic display comprising:  
a transparent substrate that forms a display surface;  
a common electrode that covers an entire area corresponding to the display surface;  
a plurality of pixel electrodes that are arranged under the common electrode and in connection with pixels respectively;  
a plurality of thin-film transistors whose drain electrodes are connected to the plurality of pixel electrodes respectively, so that each of the pixel electrodes is independently controlled in electric potential by switching each of the thin-film transistors; and  
an electrophoretic ink layer that contains a plurality of microcapsules linearly arranged between the common electrode and the pixel electrodes, wherein each of the

microcapsules contain a number of negatively charged particles having white colors dispersed in a liquid having a specific color, and wherein both of the negatively charged particles and the liquid are set to approximately a same specific gravity within the microcapsule.

15. An electrophoretic display according to claim 14, wherein all of the pixel electrodes are simultaneously set to a low electric potential while the common electrode is set to a high electric potential so that a display content is erased from the entire area corresponding to the display surface at once, and then the pixel electrodes are driven respectively in response to display data while the common electrode is set to the low electric potential so that the display content is rewritten with a new one in response to the display data.